

Message

From: Amoroso, Cathy [Amoroso.Cathy@epa.gov]
Sent: 11/16/2021 1:13:35 PM
To: Adams, Glenn [Adams.Glenn@epa.gov]
Subject: Fwd: A review of the Region 4 instream values
Attachments: Risk of New R4 discharge limits for Oak Ridge 11.12.21.docx; Comparing R4 to CWA and CERCLA concentrations 11_12_2021.xlsx; fed fac oak ridge fish values 11.8.21.xlsx

Cathy Amoroso, Chief
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Superfund & Emergency Management Division
U.S. EPA, Region 4

Begin forwarded message:

From: "Alexander, Shanna" <Alexander.Shanna@epa.gov>
Date: November 15, 2021 at 9:39:40 AM EST
To: "Amoroso, Cathy" <Amoroso.Cathy@epa.gov>, "Frederick, Tim" <Frederick.Tim@epa.gov>
Cc: "Richards, Jon M." <Richards.Jon@epa.gov>
Subject: FW: A review of the Region 4 instream values

Cathy and Tim,

Jon, Joel and I received the following email with attachments from Stuart regarding our proposed instream water quality standards. Stuart and I had a couple back-and-forth emails over the weekend regarding what I think is an "apples to oranges" comparison between the site-specific approach and the default CERCLA and CWA methods. Some of the exposure parameter variations presented in the "Risk of New R4 Discharge Limits for Oak Ridge" document does not reflect the consensus-based values from the Dispute Resolution Agreement Team (e.g., exposure frequency of 11 days/year, fish consumption rate of 227 g/day, etc.). There is also a disagreement on using the 3rd rad progeny option of the PRG calculator and a claim that not all progenies were accounted for in the risk calculations even though the primary daughters of the parent rad was evaluated and the cancer slope factors incorporated were identical to those used in the rad PRG Calculator. I think we should all meet to discuss Stuart's findings. I will line up everyone's calendars and send out a calendar appointment based on everyone's availability.

Cathy, please let me know if you would like for me to include Joel in this technical meeting since he was included in Stuart's email below.

Thanks,
Shanna

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Friday, November 12, 2021 3:48 PM
To: Alexander, Shanna <Alexander.Shanna@epa.gov>; Hansel, Joel <Hansel.Joel@epa.gov>; Richards, Jon M. <Richards.Jon@epa.gov>
Subject: A review of the Region 4 instream values

Hi all,

I got asked to take a look at what I guess is the latest Region 4 instream values for the Oak Ridge Reservation dispute. I evaluated them using the same methodology that I did with DOE's proposed concentrations from the June 2021 FFS document where I found some of their concentrations correspond to a cancer risk estimate of 1×10^{-6} (every RME recreational fisher would end up getting cancer).

I redid the analysis using the R4 instream number. I think the R4 1×10^{-5} concentrations for many of the radionuclides correspond to a 8.7×10^{-5} and 3.1×10^{-5} risk estimates using standard CWA and CERCLA defaults, assuming the CWA recreator grams per day assumption of 22. But for some radionuclide chains, leaving out the effects of the daughters is missing 99% of the cancer risk. By including daughter radionuclides I get estimates of the risks of the R4 instream concentrations of up to 7.7×10^{-2} using the CWA methodology and 4.2×10^{-2} using CERCLA methodology. If I used the R4 derived ingestion rates but accounted for the risks of daughters I would still have risk estimates of 10^{-2} using either CWA or CERCLA methodology.

I explain this in the attached Word file "Risk of New R4 discharge limits for Oak Ridge 11_12_21."

I did not rerun the PRG calculator, but used my runs from this summer where I developed 1×10^{-5} CWA and CERCLA concentrations to compare to the R4 instream concentrations. I did this comparison in an the attached excel file "Comparing R4 to CWA and CERCLA concentrations 11_12_2021."

I used the Region 4 instream values in the attached excel file "fed fac oak ridge fish values 11.8.21."

Please let me know if you have any comments or questions.

Stuart Walker
US EPA/OLEM/OSRTI/ARD/SPB
Superfund Remedial Program's National Radiation Expert
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